BACKGROUND OF THE INVENTION

The present invention relates to a pack having at least one holding and carrying

5   handle comprising at least one flap or tab.

Pourable material for domestic use, such as e.g. potting compost, cat litter, bird food

or sand, is generally stored and transported in a pack made from tear-resistant

material, such as e.g. plastic. As from a certain material quantity the difficulty arises

10   of having to lift or carry the pack, together with the material therein. This problem

has been solved in certain cases by the central fitting of the handle to the top of the

usually bag-like pack. The other function which a pack of pouring material has to

fulfill is the targeted discharge of said material into a suitable collecting container,

such as e.g. a flowerpot, cat toilet, sand box or saucepan. In the case of conventional

15   packs this function is ensured in that the pack is opened at a point located in its top

part and pouring out is brought about by raising and inclining the pack. As from a

certain pack size, this discharge process requires considerable effort and involves

considerable activity on the part of the other arm for targeting and for dosing the

poured material. Such a pouring material discharge procedure is fatiguing and

20   uncomfortable.

SUMMARY OF THE INVENTION

The object of the invention is to provide a pack, which ensures comfortable handling

both during pouring and lifting and carrying and which is at the same time

inexpensive, because it is easy to manufacture.

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According to the invention this object is achieved in that a handle comprising at least

one flap is arranged in eccentrically displaced manner on one of the faces of the pack,

i.e., is positioned eccentrically along an axis of symmetry of the face parallel or perpendicular to the flap running direction.

Preferably, the angle α between an axis of symmetry passing through the center of gravity, which is perpendicular to the face to which the handle is fitted and an imaginary axis passing through a support point, formed by hand contact, on the flap or flaps and the center of gravity, exceeds $0°$. The angle α is in the range 2 to $40°$.

According to a preferred embodiment of the invention the angle α is in the range between 5 and $30°$ and is preferably $10°$.

According to one embodiment, the handle is so fitted to one of the faces of the pack that it is positioned centrally along an axis of symmetry of the face perpendicular to its own longitudinal axis described by the flap running direction and eccentrically along another axis of symmetry of the face parallel to the flap running direction.

The inventive construction of a pack is characterized in that the problems of the pouring, lifting and carrying comfort, as well as the inexpensive manufacture are solved in an ideal manner. In the case of a suitable choice of the eccentricity of the handle the carrying comfort is in no way impaired. The eccentric fitting of a handle to the pack ensures an automatic inclination of the pack in the pouring direction, so that pouring is made easier. The eccentricity of the handle is sufficient to ensure much easier. The eccentricity of the handle is sufficient to ensure much easier pouring, but the carrying comfort is not reduced. Thus, the handle of such a pack in the unopened state forms an ideal carrying and holding handle.

BRIEF DESCRIPTION OF THE DRAWING

The invention is described in greater detail hereinafter relative to the attached drawings, wherein show:

Fig. 1a   The eccentric fitting of a handle to a pack according to the invention.

5   Fig. 1b   The angle of inclination α in the case of an eccentric fitting of a handle to the pack.

Fig. 2   A diagrammatic representation of the side lengths and inclination angles, which can occur in the case of an eccentric fitting of a handle to a pack, as a function of the dimensions thereof.

10   Fig. 3   A diagrammatic representation of an embodiment in which, due to the eccentric fitting of the handle, the inclination angle α exceeds 45°.

Fig. 4   A diagrammatic representation of an embodiment in which, due to the eccentric fitting of a handle, the inclination angle α is 30°.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

15   A conventional pack for strewing and pouring material can, in a first approximation, be represented in simplified form by a parallelepiped. However, the following considerations also apply for packs, which can in a first approximation be represented by a cylinder or a conical or pyramidical frustum. However, for reasons of geometrical simplicity the invention is explained hereinafter relative to a

20   parallelepiped.

Figs. 1a and 1b diagrammically show a pack, in which the handle is eccentrically fitted in the above-described manner, which results in an inclination angle α is dependent on the eccentricity of the handle on the pack. The further outwardly the

25   handle is fitted, the greater the inclination angle α. The handle is eccentrically fitted along the axis of symmetry 1. The double arrow represents the viewing direction,

which is assumed in the following representations and 2 is another axis of symmetry, perpendicular to 1. I is a projection of the lateral face of a pack with eccentrically fitted handle and which for reasons of simplicity has been represented as II. Position III is assumed on holding the handle. There is an angle α, ≠ 0° between the central

5   longitudinal axis of symmetry of the lateral face 3 and the "new" perpendicular 4. S is the center of gravity of the lateral face.

Fig. 2 describes the sides and inclination angles which can arise when a handle is eccentrically fitted to a pack and in which b is the side length of the pack plus the

10   handle height and c is the eccentricity of the hand support point B of the handle from the median perpendicular of the lateral face 3, which passes through the center of gravity S, as well as the point A. The line passing through the points A or center of gravity S is one of the axes of symmetry of the body. Point B is an idealized support point essentially formed by the hand contact on the handle flap and the line 4 passing

15   through point B and the center of gravity S and forms an angle of inclination α to 3 when holding the pack by the handle. The magnitude of this inclination angle is dependent on the length of the pack b and the eccentricity of the handle c. Thus, the angle α is the arc tangent of the quotient of c and b/2. If c is expressed as a fraction of b/2, it is possible to calculate the arc tangent for different eccentricities (different c-

20   values). The following values are obtained:

$c = 4 \ b/2 \qquad \rightarrow \text{arctan } 2 - 63.4°$

$c = 19/5 \ b/2 \rightarrow \text{arctan } 1.9 = 62.2°$

$c = 9/5 \ b \qquad \rightarrow \text{arctan } 1.8 = 60.9°$

$c = 17/b \ b/2 \rightarrow 1.7 = 59.5°$

25    $c = 8/5 \ b \qquad \rightarrow \text{arctan } 1.6 = 58°$

$c = 3/2 \ b \qquad \rightarrow \text{arctan } 1.5 = 56.3°$

c = 7/5   → arctan 1.4 = 54.5°

c = 13/5 b/2 → arctan 1.3 = 52.4°

    etc.   etc.

c = b/2   → arctan 1 = 45°

5   c = 3/5 b/2 → arctan 3./5 = 31°

c = ½ b/2   → arctan ½ = 26.6°

c = 1/10 b/2 → arctan 1/10 =5.7°

Fig. 3 shows a pack with an eccentrically fitted handle, in which the inclination angle

α is more than 45°. As is readily apparent from the drawing, this is precisely the case

10   if the eccentricity c exceeds b/2. Expressed more graphically, this means that the

handle is eccentrically fitted to the longer side of the rectangle describing the

parallelepiped. Extreme inclination angles are possible with such a fitting. However,

normally, with the pack full, such an eccentricity is disadvantageous for the carrying

comfort. ,

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Fig. 4 is a diagrammatic representation of a pack with an eccentrically fitted handle,

in which the angle of inclination is approximately 30°. This is precisely the case if the

eccentricity c is between 0.5 and 0.6 times the half side length of the longitudinal side

(including handle height) of the pack b.

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It has been found that an inclination angle between 10 and 40° is optimum

compromise between facilitated pouring comfort on the one hand an unimpaired

carrying comfort on the other. Although values of α exceeding 45° facilitate the

pouring of the material, they are disadvantageous for carrying due to the extreme

25   eccentricity of the handle. Conversely inclination angle values smaller than 10°

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improve   arrying comfort, but do not offer the same pouring comfort as can be
expected with handles having a greater eccentricity.

What has been stated in the above description, drawings and claims with respect to
5   the eccentric fitting of a handle to a pack approximately described by a parallelepiped,
essentially applied to other packs approximately described by regular geometrical
bodies, such as e.g. cylinders or frustums of a cone. This also applies with respect to
its applicability for the eccentric fitting of several instead of a single handle to a pack.
This can be important if e.g., following a partial consumption of the pouring material
10   in the pack, a greater inclination angle is necessary for the comfortable pouring out of
the still remaining materials. Than can be solved by further, eccentrically fitted
handles on the pack.

The features of the invention disclosed in the above description. Claims and drawings
15   can be essential to the implementation of the various embodiments of the invention
both singly and in random combination.